

WHAT IS CLAIMED IS:

1. An optical disk apparatus for recording and reproducing data on and from an optical disk having a signal-recording surface, said apparatus comprising:

optical head means for applying a light spot to the signal-recording surface of the optical disk;

¹⁰⁴₁₀₉ focusing control means for controlling the focusing operation the optical head means performs to place the signal-recording surface of the optical disk within a focal distance of the light spot applied by the optical head means;

¹⁰⁷ evaluation-function generating means for generating an evaluation function for correcting a focus value set in the focusing control means, in accordance with signals the optical head means has generated from light reflected from the optical disk; and

¹¹¹ ¹¹² control means for setting an initial focus value at a point where the evaluation function generated by the evaluation-function generating means is minimal or maximal, for setting an observation point deviating from the point where the initial focus value is set, and for correcting the initial focus value in accordance with changes in the evaluation function at the observation point.

2. The optical disk apparatus according to claim 1, wherein the evaluation-function generating means generates an evaluation function that changes like a quadratic function with a degree of defocusing, and the control means sets the initial focus value at the point where the evaluation function is minimal.

3. The optical disk apparatus according to claim 2, wherein the control

means increases the initial focus value in direct proportion to the evaluation function at the observation point.

4. The optical disk apparatus according to claim 2, wherein the control means decreases the initial focus value in direct proportion to the evaluation function at the observation point.

5. The optical disk apparatus according to claim 1, wherein the control means corrects the focus value set in the focusing control means, every time the optical disk rotates a prescribed number of times.

6. The optical disk apparatus according to claim 1, wherein the control means corrects the focus value set in the focusing control means, every time the temperature in the apparatus changes by a prescribed value.

7. The optical disk apparatus according to claim 1, wherein the control means corrects the focus value set in the focusing control means, at regular time intervals.

8. The optical disk apparatus according to claim 1, wherein the control means corrects the focus value set in the focusing control means, in accordance with the light reflected from the optical disk.

9. A focus-value correcting method for use in focusing control for placing the signal-recording surface of an optical disk within the focal depth of a light spot on an optical head has applied to the optical disk, said method comprising the steps of:

setting an initial focus value at a point where an evaluation function for

correcting a focus value set in the focusing control means is minimal or maximal, said evaluation function having been generated from signals the optical head means has generated from light reflected from the optical disk;

setting an observation point deviating from the point where the initial focus value is set, and acquiring the first evaluation function at the observation point thus set;

determining the timing at which to correct the focus value to perform the focusing control;

acquiring the second evaluation function at the observation point at the timing determined; and

correcting the initial focus value in accordance with a difference between the first evaluation function and the second evaluation function.

10. An optical disk having a signal-recording surface that is placed within a focal depth of a light spot applied on the signal-recording surface by an optical head, during focusing control, said disk having:

a servo region on the signal-recording surface; and

an evaluation-function recording area provided at a prescribed part of the servo region, for recording evaluation functions that are applied to correct a focus value for use in the focusing control.

11. The optical disk according to claim 10, wherein data from which the evaluation functions are generated is recorded, in the form of pits, in the evaluation-



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